

United States Government

Department of Energy
Bonneville Power Administration

memorandum

DATE: August 13, 2003

REPLY TO
ATTN OF: KEP-4

SUBJECT: Supplement Analysis for the Transmission System Vegetation Management Program FEIS
(DOE/EIS-0285/SA-173-Tacoma – Raver #1))

TO: Don Atkinson
Natural Resource Specialist - TFN/SNOHOMISH

Proposed Action: Vegetation Management for portion of the Tacoma – Raver #1 500 kV transmission line located from tower structure 1/1 to 15/6. Other lines which are present in the proposed corridor are the Tacoma – Raver #2 500 kV, Tacoma – Covington #2 230 kV, Tacoma – Covington #3 230 kV, and Tacoma – Covington #4 230 kV.

Location: Project location is within Pierce and King Counties, Washington and is within the Snohomish Region.

Proposed by: Bonneville Power Administration (BPA).

Description of the Proposal: BPA proposes to clear targeted vegetation within the right-of-way. BPA proposes to clear along access roads and remove danger trees outside the right-of-way where appropriate. Project is to remove vegetation that may impede the operation and maintenance of the subject transmission line. See Section 1.1 through 1.4 of the attached checklists for a complete description of the proposed action.

Analysis: Please see the attached checklist for the resources present. Applicable findings and mitigation measures are discussed below.

Planning Steps:

1. Identify facility and the vegetation management need.

Work will take place along a portion of the Tacoma – Raver #1 500 kV transmission line. The project extends between towers 1/1 and 15/6 having an easement width of 262.5 feet. The total project area consists of approximately 481 acres. It is estimated that all of the 452.1 acres be treated.

Tall growing vegetation of the types listed in Section 1.2 of the attached checklist are present in the ROW and will soon pose a hazard to the lines. Project involves clearing tall growing vegetation and treatment of the associated stumps and re-spouts with approved herbicides to ensure that the roots are killed.

Vegetation on access roads and around tower sites that impede the operation and maintenance of the transmission line will also be cleared and/or treated.

All off right-of-way trees (danger trees) that are marked as potentially unstable, or trees that are identified that will fall within the minimum approach distance or into the safety zone of the power line will be cut as part of this project. Danger trees may be treated to prevent resprouting. Large trees within the right-of-way (C-Trees) will also be cleared and/or treated.

A follow-up chemical foliar treatment is scheduled within the next growing season. Control methods and requirements, as outlined in Sections 3 of the attached Vegetation Management Checklist, will be employed to mitigate any environmental effects to natural resources or to Threatened or Endangered species habitat. This vegetation management program is designed to provide a 3-5 maintenance free interval after the follow-up treatment.

2. Identify surrounding land use and landowners/managers and any mitigation.

A portion of the subject corridor is adjacent to land owned by the Puyallup Nation, but the project area consists mostly of rural residential and many private landowners.

A letter will be sent by mail to notify landowners in proximity to the project transmission lines prior to vegetation control activities. Personal contact along with door hangers may also be employed to notify landowners. The Prescription / Cut Sheets will be modified as needed based on input received during the project. A listing of current Landowner Agreements along the ROW can be found in Section 2.4 of the attached checklist.

3. Identify natural resources and any mitigation.

Section 3 of the attached checklist identifies the natural resources present in the area of the proposed work. The following cites resources found along with applicable mitigation measures:

Riparian Habitat:

Includes all wetlands, streams, creeks and ponds meeting the definition of riparian habitat. Riparian areas were identified which may include essential fish habitat. See Section 3.1 of the attached checklist for a complete listing of identified water resources.

Riparian Habitat Mitigation:

- No herbicides are to be applied to county or private lands within 200 feet of a stream or open water and 100 feet of wetlands. Available treatments include manual, some mechanical, and biological treatments (except grazing). On slopes less than 20% there will be no disturbance within 35 feet of the stream or wetland. On slopes greater than 20% there will be no disturbance within the buffer.

Irrigation Source, Wells, or Springs:

Includes water sources, springs, wells and other sensitive lands within 100 feet of sensitive riparian areas or water sources. See Section 3.2 of the attached checklist for a complete listing.

Irrigation Source, Wells, or Springs Mitigation:

- For water sources, springs, wells and other sensitive lands within 100 feet of sensitive riparian areas or water sources, herbicides will not be applied. Only hand cutting methods are permitted within this buffer.

Herbicide use is limited to those that do not have ground or surface water advisories between 100 and 165 ft of wellhead. Approved herbicides include glyphosate, imazapyr, triclopyr and Escort.

T & E Species:

Section 3.3 of the attached checklist presents any Threatened or Endangered Species identified in the area of the proposed work.

T & E Species Mitigation:

- **Listed Anadromous Fish and Bull Trout:** For streams within a 400-foot buffer (on each side of the stream) no herbicides are to be used. No mechanical treatment is allowed within the buffer except along access roads and around structures. Exception may be made on slopes less than 20%, with high concentration of tall growing brush (tree) to reduce fuel loading. When cutting within the buffer zone, shade-bearing vegetation is to be maintained where possible. When cutting large C-Trees or Danger Trees along the edges of the ROW, they will be evaluated for their potential as large woody debris (LWD).

Cultural Resources:

There are no known cultural resources are present along the ROW.

Cultural Resources Mitigation:

A letter will be sent to the Puyallup Nation informing them of BPA's intent to perform routine ROW vegetation management and to determine the desired level of tribal involvement in planning efforts. Restrictions or mitigation measures such as seasonal constraints for vegetation control, avoidance of certain areas, or using methods that do not affect non-target plants may be required and included in the contract. If a cultural resource site is discovered during the course of vegetation control, work will be stopped in the vicinity and the local tribe will be contacted as well as the BPA Environmental Specialist.

Steep Slopes:

See Section 3.7 of the attached checklist for areas having a steep slope requiring vegetation management. Manual, herbicide, and biological treatments are available for treatment. Ground disturbing mechanical equipment is not allowed to clear on slopes greater than 20% except for treatment on access roads and around structures.

Spanned Canyons:

Includes areas in the corridor with a greater than 125 feet vertical distance between the ground surface and transmission lines. Removal is periodically required of individual trees that could encroach into the transmission corridor danger zone. See Section 3.8 of the attached checklist for a listing of such areas along the ROW.

4. Determine vegetation control and debris disposal methods.

Vegetation will be removed using manual, mechanical, and chemical methods. Glyphosate, triclopyr (Garlon 3A and 4), imazapyr, and dicamba may be used for cut-stump, stem-injection, and basal-stem treatments. Metsulfuron methyl (Escort) and clopyralid may also be used for spot foliar and broadcast treatments. 2,4-D amine may be used for noxious weed species.

Debris will either be disposed on-site or trucked off-site using either chip, lop and scatter, or mulch techniques as described in Section 5 of the attached checklists.

5. Determine revegetation methods, if necessary.

Re-vegetation is not planned for this project. However, if soil disturbance occurs during the project, the area will be reseeded.

6. Determine monitoring needs.

The project area will be inspected during treatment. In addition, it will be reviewed during routine patrols by the line crew and within one year by the NRS.

7. Prepare appropriate environmental documentation.

Findings: This Supplement Analysis finds that 1) the proposed actions are substantially consistent with the Transmission System Vegetation Management Program FEIS (DOE/EIS-0285) and ROD, and; 2) there are no new circumstances or information relevant to environmental concerns and bearing on the proposed actions or their impacts. This Supplement Analysis also finds the proposed actions will not affect threatened or endangered species. Therefore, no further NEPA or ESA documentation is required.

/s/ Oden W. Jahn

Oden W. Jahn

Environmental Protection Specialist

CONCUR: /s/ Thomas C. McKinney
Thomas C. McKinney
NEPA Compliance Officer

DATE: 08/19/2003

Attachment

cc:

L. Croff - KEC-4

T. McKinney - KEC-4

J. Meyer - KEP-4

E. Stratton – KEP/PSB2

O. Jahn – KEPR-4

M. Martin – KEPR/Covington

P. Key - LC-7

J. Hilliard Creecy – T-DITT2

D. Hollen - TF/DOB-1

K. Rodd - TFN/Snohomish

L. Alvarez – TFN/Snohomish

A. De La Cruz – TFN/Snohomish

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Environment - KEC-4

Official File - KEP (EQ-14)

Vegetation Management Checklist

Tacoma - Raver No.1

1/1 to 15/6 mile

Prepared By: **Katherine Rodd**
Natural Resource Specialist

1. IDENTIFY FACILITY AND THE VEGETATION MANAGEMENT NEED

1.1 Describe Right-of-way.

See Handbook — List of Right-of-way Components for checkboxes and the requirements for the components Rights-of-way, Access Roads, Switch Platforms, Danger Trees, and Microwave Beam paths.

Corridor Name	Corridor Length & kV	Easement width	Miles of Treatment
Tacoma - Raver No. 1	1/1 to 15/6 500kv	262.5'	Approx. 15 miles

Right Of Way:

Right-Of-Way – Clearing trees and brush within the right-of-way and treating with herbicides. The right-of-way will be treated using selective and non-selective methods that include hand cutting, mowing and herbicide treatments. Herbicide treatments will include spot treatment (stump treatment, basal treatment, and/or spot foliar), or localized treatments (including broadcast application and cut stubble treatments). The total project area consists of approximately 481 acres. It is estimated that approximately 452.1 acres of the project area will be cut.

Access Road Clearing – Approximately 15 miles of clearing using selective and non-selective methods that include hand cutting, mowing and herbicide treatments. Note, when the access roads traverse a riparian area they will not be treated with herbicides.

Transmission Structures – Approximately 150 tower sites will be treated using selective and non-selective methods that include hand cutting, mowing and herbicide treatments. The herbicide treatments include spot (cut stump or basal treatment), localized and broadcast applications including cut stubble treatments. Structures located within riparian areas will not be treated with herbicides.

Clearing Requirements:

- § Control all tree and brush species within about 30 ft. of transmission structures. Cut stumps are not to be taller than 2 – 4 inches.
- § Pull all debris and slash out of the 30-ft. area around transmission structures.
- § Access Road Clearing Requirements: - (there are approximately 15 miles of machine and hand cutting)
- § Control all vegetation except grasses and forbs, to enable safe driving.
- § The access road is to be 14 to 25 ft. wide with a 15-ft.- high clearance. Limbs should not hang down into the access road.
- § Cut stumps are not to be taller than 2 – 4 inches in the roadbed.
- § Cut stumps horizontal to the ground to prevent personal injuries and tire puncture.
- § Trim limbs back as flush to the trunk as possible when trees are rooted outside of the access road.
- § Pull all debris back from the access road as prescribed.
- § Cut stumps horizontal to the ground to prevent personal injuries and tire puncture.
- § Trim limbs back as flush to the trunk as possible when trees are rooted outside of the access road.

§ Pull all debris back from the access road as prescribed.

Reclaim (“C”) Trees – C trees will be cut as part of this project.

Danger Trees (off right-of-way): – All off-right-of-way trees (danger trees) that are marked as potentially unstable, or trees that are identified during the project, that would fall within the minimum approach distance (MAD) or into the safety zone of the power line, may be cut as part of this project. Danger trees may be treated with herbicides to prevent resprouting.

1.2 Describe the vegetation needing management.

See handbook — [List of Vegetation Types](#), [Density](#), [Noxious Weeds](#) for checkboxes and requirements.

Vegetation Types:

Western Red Cedar

Douglas fir

Grand fir

Hemlock

Alder

Willows – mid span or where ground to conductor clearance is low

Cottonwoods

Wild Cherry

Scotchbroom – along access roads and around structures or mid span where ground to conductor clearance is low

Blackberries - along access roads and around structures or mid span where ground to conductor clearance is low

Density: The density is variable through the project and ranges from Low (50 stems or less per acre) to as High (250 + stems per acre).

1.3 List measures you will take to help promote low-growing plant communities. If promoting low-growing plants is not appropriate for this project, explain why. See Handbook — for requirements and checkboxes.

Vegetation that will grow tall will be selectively eliminated *before* it reaches a height or density to begin competing with low-growing species. Desirable low-growing plants will not be disturbed. Only selective vegetation control methods that have little potential to harm non-target vegetation will be used.

Cut-stump or follow-up spot herbicide treatments on species that re-sprout will be carried out to ensure that the roots are killed (follow-up treatment may take place during the next growing season). Herbicides will not be applied using high volume methods to ensure that non-target species are not treated.

1.4 Describe overall management scheme/schedule.

See Handbook - [Overall Management Scheme/Schedule](#).

Description of the Proposed Action: The project consists of clearing unwanted vegetation within the right-of-way, around structures, and along access roads that may impede the operation and maintenance of the subject transmission line.

All work will be in accordance with the National Electrical Safety Code and BPA standards. It is the goal of this project to remove the tall growing vegetation that is currently or will soon be a hazard to the transmission line. The overall goal is to develop low-growing plant communities within the right-of-way.

Right-Of-Way – The total project area consists of approximately 481 acres. It is estimated that approximately 452.1 acres of the project area will be cut.

Access Road Clearing – Approximately 15 miles of access roads will be cleared.

Transmission Structures – Approximately 150 tower sites will be treated.

Danger Trees (off right-of-way): – All off-right-of-way trees (danger trees) that are marked as potentially unstable, or trees that are identified during the project, that would fall within the minimum approach distance (MAD) or into the safety zone of the power line, will be cut as part of this project. As site conditions allow danger trees may be treated with herbicides to prevent re-sprouting.

Maintenance will include treatments to manage the target vegetation. Maintenance activities in the ROW could occur every year for the first Maintenance Cycle. Normally, the vegetation would be treated every 3 to 4 years. Three general control methods are being considered. They can be used individually or in combination to control vegetation including noxious weeds. The project prescription cut sheet documents exactly which treatment is proposed on a site-specific location.

- Manual methods
- Mechanical methods
- Chemical methods

Manual Control Methods – are the control/management of vegetation by pulling or cutting with hand tools including the following techniques:

- **Pulling** - Physically pulling vegetation from the soil.
- **Cutting** - using shears, clippers, chainsaws, brush saws and axes to sever the above ground vegetation (including topping, pruning and side -trimming). The most common cutting prescription is “cut lop and scatter”. This is defined as cutting the vegetation from the stump, lopping or cutting the limbs from it to ensure contact with the ground, and hand scattering the cut limbs to avoid concentrations of debris.
- **Girdling** – cutting a ring completely around the trunk of the tree, sufficiently deep into the cambium layer to kill the tree, but leave it standing.

Mechanical Control Methods – are the control/management of vegetation by cutting it with mowing type equipment, mounted on rubber-tired or track-type tractors, including the following types of equipment:

- **Mowers** with rotary heads or rotating drums mounted on rubber tired or track-type tractors (track hoe).
- **Feller Bunchers**, track-mounted machines that grab the trees, cut them at the base, remove branches, cut to length, and then move them to a desired location. The feller buncher could be used during the removal of C-Trees (large trees within the right-of-way) or Danger Trees off the right of way.

Chemical Methods - include spot treatment (stump or stubble treatment, basal treatment, and/or spot foliar), or localized treatments (including broadcast application and cut stubble treatments with Garlon 4 to ensure that the roots are killed preventing new sprouts and selectively eliminating vegetation that prevents access to the power lines. If we are unable to treat the stumps during the project, we will wait until the next growing season and do a localized foliar treatment. In areas where the trees are less than 6ft. tall and the density is light we may do a localized basal treatment.

Critical Design Elements

Streams and Wetlands

Buffer zones have been established for all aquatic resources as follows:

- For T&E streams a 400-foot (on each side of stream) no herbicide buffer.
- For non T&E streams and wetlands a 100-foot (on each side) no herbicide buffer.
- For other water resource buffers (springs, well and irrigation) see section 3.2
- On slopes less than 20% there will be no disturbance within 35ft. of the stream or wetland.
- On slopes greater than 20% there will be no disturbance within the identified buffer.

Threatened and Endangered Species Areas:

Aquatic Species

- For T&E fish streams a 400-foot (on each side of stream) no herbicide buffer.
- No mechanical treatments within the buffer except along access roads and around structures.
- When cutting within the buffer zone, shade-bearing vegetation is to be maintained where possible.

Steep Slopes and Spanned Canyons

- Do not use ground disturbing mechanical equipment on slopes over 20%.
- Perform mechanical clearing when the ground is dry enough to sustain heavy equipment.
- Areas with the potential for erosion may be re-seeded with low-growing vegetation or grasses if there is limited vegetation for re-establishment of the site.
- Any areas in the corridor with greater than 38.1 m (125 ft.) vertical distance between the ground surface and transmission lines will have selective tree removal. Individual trees that could encroach into the conductor danger zone will be identified and selected for removal in each management entry

Specific Measures to be implemented during the project:

- When chainsaws are used, conifers will be cut below the lowest live limb to eliminate continued growth of the lateral branches.
- Control all tree and brush species within about 30 ft. of transmission structures. Cut stumps are not to be taller than 2 – 4 inches.
- Pull all debris and slash out of the 30-ft. area around transmission structures.
- Access Road Clearing Requirements: - (there are approximately 41 miles of machine and hand cutting)

- Control all vegetation except grasses, to enable safe driving.
- The access road is to be 14 to 25 ft. wide with a 15-ft.- high clearance. Limbs should not hang down into the access road.
- Cut stumps are not to be taller than 2 – 4 inches in the roadbed.
- Cut stumps horizontal to the ground to prevent personal injuries and tire puncture.
- Trim limbs back as flush to the trunk as possible when trees are rooted outside of the access road.
- Pull all debris back from the access road as prescribed. Cut stumps horizontal to the ground to prevent personal injuries and tire puncture.
- Areas may be re-seeded with low-growing vegetation or grasses if there is limited vegetation for re-establishment of the site.
- As flush to the trunk as possible when trees are rooted outside of the Areas where vegetation densities are high, or that have high densities of scotch broom and /or blackberries will be mowed using a track mounted mowing head.
- All access roads and structure sites will also be mowed and chemically treated off-National Forest Lands.
- Trim limbs back access road.
- Pull all debris back from the access road as prescribed

Initial entry – Using hand cutting or mechanical mowers, BPA will complete brush management activities on the right-of-way, access roads and towers sites, chemically treat stumps and stubbles with herbicides (spot and localized treatments) to ensure that the roots are killed preventing new sprouts and selectively eliminating vegetation that prevents access to the power lines. Areas may be replanted or re-seeded with low-growing vegetation or grasses if there is limited vegetation for re-establishment of the site. Cut, lop and scatter, and stump treatment (where possible to prevent re-sprouting) are the preferred methods on State and Private lands. Areas where densities are high, or that have a lot of Scotch Broom and /or blackberries will be mowed using a track mounted mowing head. Access roads and structure sites will also be mowed and chemically treated.

Subsequent entries – Follow-up/re-treatment, within the right-of-way, around structure sites, and along access roads, is planned within the next growing season. This will be done with herbicides in areas that were not treated due to adverse weather conditions, there was not a good kill, or that were not treated in the initial entry.

Future cycles – This area is being managed on a 3 to 5 year maintenance free cycle for brush and danger trees. During routine patrol, the right-of-way will be examined for tall growing trees on the right-of-way and danger trees (DT's) off the right-of-way. The overall vegetation management scheme will be to cut and treat all encumbering vegetation on the right-of-way using a combination of manual, mechanical and herbicide treatments as outlined in the initial treatment every 3 to 5 years.

2. IDENTIFY SURROUNDING LAND USE AND LANDOWNERS/MANAGERS

2.1 List the types of landowners and land uses along your corridor.

See Handbook — [Landowners/Managers/Uses](#) for requirements, and [List of Landowners/Managers/Uses](#) for a checkbox list.

The project area consists of rural residential and many private landowners.

2.2 Describe method for notifying right-of-way landowners and requesting information (i.e., door hanger, letter, phone call, e-mail, and/or meeting). Develop landowner mail list, if appropriate.

See Handbook — [Methods for Notification and Requesting Information](#) for requirements.

Letters or Personal contact by BPA and/or the Contractor along with door hangers. This will be done before and during the project. The Prescription/Cut Sheets will be modified as needed based on any input received during the project.

2.3 List the specific land owner/land use measures — determined from the handbook or through your consultations with the entities — that will be applied.

See handbook — [Requirements and Guidance for Various Landowners/Uses](#) for requirements and guidance, also [Residential/Commercial](#), [Agricultural](#), [Tribal Reservations](#), [FS-managed lands](#), [BLM –managed lands](#), [Other federal lands](#), [State/ Local Lands](#).

No specific landowner measures needed. Note – not all areas within the project area will be treated with herbicides. Riparian areas and areas where the landowners do not want herbicides used, will not be treated.

2.4 Review any existing landowner agreements (e.g. tree/brush Permits or Agreements). List in table above any provisions that need to be followed and where they are located.

See handbook — [Landowner Agreements](#) for requirements.

Tacoma – Raver No. 1 (See attached maps for locations)

Span		Landowner/use	Specific measures to be applied
From	To		
2/2 + 250	2/2 + 870	Coski - Tree & Brush Agreement	Landowner will maintain
3/2 + 120	3/2 + 200	City of Federal Way - Tree & Brush Agreement	Landowner will maintain
3/4+ 220	3/4 + 260	City of Federal Way - Tree & Brush Agreement	Landowner will maintain
5/4 + 230	5/5 + 800	City of Federal Way - Tree & Brush Agreement	Landowner will maintain
5/5 + 940	6/1 + 250	Allied Group Apts. - Tree & Brush Agreement	Landowner will maintain
6/5 + 120	6/5 + 340	City of Federal Way – Storm Drainage Utility Project	No Spray Area
7/5 + 330	7/5 + 530	Jung - Tree & Brush Agreement	Landowner will maintain
7/5 + 530	7/5 + 730	Fred Doty - Tree & Brush Agreement	Landowner will maintain

8/3 + 1040	8/4 + 100	Bosshart - Tree & Brush Agreement	Landowner will maintain
11/3 + 300	11/3 + 920	Bye the Green - Tree & Brush Agreement	Landowner will maintain
13/3 + 30	13/3 + 370	King County - Tree & Brush Agreement	Landowner will maintain – Tree Farm
13/3 + 1000	13/4 + 190	King County - Tree & Brush Agreement	Landowner will maintain – Tree Farm
13/4 + 220	13/4 + 310	Jacobsen - Tree & Brush Agreement	Landowner will maintain – Tree Farm

2.5 List any known casual informal use of the right-of-way by non-owner publics. List any constraints or measure’s to take due to the informal use.

See handbook — [Casual Informal Use of Right-of-way](#) for requirements.

None Known.

2.6 List other potentially affected people, agencies, or tribes (that are not landowners/managers) that need to be notified or coordinated with. Describe method of notification and coordination.

See handbook — [Other Potentially Affected Publics](#) for requirements and suggestions.

Puyallup Nation. A letter will be sent to the Puyallup Nation informing them of BPA’s intent to perform routine ROW vegetation management and to determine the desired level of tribal involvement in planning efforts. Tribal input will be incorporated into the final cut sheet.

3. IDENTIFY NATURAL RESOURCES

See Handbook — [Natural Resources](#)

3.1 List any water resources (streams, rivers, lakes, wetlands) that may be impacted by vegetation control activities. For each water body describe the control methods and requirements or mitigation measures that will be used.

See Handbook — [Water Resources](#) for requirements for working near water resources including buffer zones.

Tacoma – Raver No. 1 (See attached maps for locations)

Span		Waterbody	T&E?	Treatment Zone	Herbicide	Application Technique	Buffer	Other
From	To							
1/4 + 240	1/4 + 760	Hylebos Creek	No	Riparian	See below	See below	See below	
3/2 + 620	3/2 + 820	Wetland	No	Riparian	See below	See below	See below	
5/5 + 120	5/5 + 470	Wetland	No	Riparian	See below	See below	See below	
7/1 + 690	7/1 + 960	Wetland	No	Riparian	See below	See below	See below	
7/1 + 1420	7/2 + 150	Wetland	No	Riparian	See below	See below	See below	
7/5 + 340	8/1 + 00	No Name Creek	Yes	Riparian T&E	See below	See below	See below	Listed Anadromous fish

9/5 + 960	10/2 + 100	No Name Creek + Wetland	Yes	Riparian T&E	See below	See below	See below	Listed Anadromous fish
10/3 + 230	10/3 + 1000	Storage Pond	No	Riparian	See below	See below	See below	
11/4 + 420	11/5 + 60	Detention Pond	No	Riparian	See below	See below	See below	
11/5 + 190	11/6 + 190	Green River	Yes	Riparian T&E	See below	See below	See below	Listed Anadromous fish & Bull Trout
12/1 + 210	12/1 + 630	Creek	No	Riparian	See below	See below	See below	
12/5 + 425	13/1 + 75	No Name Creek	Yes	Riparian T&E	See below	See below	See below	Listed Anadromous fish
13/1 + 375	13/1 + 1120	Wetland	No	Riparian	See below	See below	See below	
13/1 + 940	13/1 + 1155	Pump Ho	No	Riparian	See below	See below	See below	
13/5 + 810	14/1 + 110	Well	No	Riparian	See below	See below	See below	
14/1 + 20	14/1 + 820	No Name Creek	Yes	Riparian T&E	See below	See below	See below	Listed Anadromous fish
14/1 + 240	14/1 + 400	Well	No	Riparian	See below	See below	See below	
14/1 + 490	14/1 + 670	Well	No	Riparian	See below	See below	See below	
14/3 + 40	14/3 + 420	Wetland	No	Riparian	See below	See below	See below	
15/1 + 900	15/1 + 1070	Well & Pump Ho	No	Riparian	See below	See below	See below	
15/1 + 1440	15/2 + 1540	Creek & Wetland	Yes	Riparian T&E	See below	See below	See below	Listed Anadromous fish & Bull Trout
Riparian	<p>RIPARIAN: County or private lands, within 61.0 m (200 ft.) of a stream or open water and 30.5 m (100ft.) of wetlands. Available: manual, some mechanical, and biological treatments, except grazing. On slopes less than 20% there will be no disturbance within 35ft. of the stream or wetland. On slopes greater than 20% there will be no disturbance within the buffer.</p> <p>Herbicides: No herbicides used within the buffer zone.</p>							
Riparian T&E	<p>RIPARIAN ANADROMOUS AND/OR T&E: BPA, county, or private lands, within 122 m (400 ft.) of a listed salmon stream. Available: all manual, some mechanical, and biological treatments, except grazing. On slopes less than 20% there will be no disturbance within 35ft. of the stream or wetland. On slopes greater than 20% there will be no disturbance within the buffer. When cutting within the buffer zone, shade-bearing vegetation is to be maintained where possible.</p> <p>Herbicides: No herbicides used within the buffer zone.</p>							

3.2 If planning to use herbicides, list locations of any known irrigation source, wells, or springs (landowners maybe able to provide this info if requested).

See Handbook — [Herbicide Use Near Irrigation, Wells or Springs](#) for buffers and herbicide restriction

Tacoma – Raver No. 1 (See attached maps for locations)

Span		Wells, Irrigation or Springs	Treatment Zone	Buffer
From	To			
13/1 + 940	13/1 + 1155	Pump Ho	Non Herbicide Area	100 ft. radius around pump ho
13/5 + 810	14/1 + 110	Well	Non Herbicide Area	100 ft. radius around well head
14/1 + 240	14/1 + 400	Well	Non Herbicide Area	100 ft. radius around well head
14/1 + 490	14/1 + 670	Well	Non Herbicide Area	100 ft. radius around well head
15/1 + 900	15/1 + 1070	Well & Pump Ho	Non Herbicide Area	100 ft. radius around well head & pump ho
NON-HERB	NON-HERBICIDE AREAS Water sources, springs, wells and other sensitive lands within 100 feet of sensitive Riparian areas or water sources. Hand Cutting Methods only, no Herbicides allowed. WELLS: No herbicides allowed within 100 feet of wellhead. Use only herbicides that do not have ground or surface water advisories between 100 and 165 feet of wellhead. Approved herbicides include: glyphosate, imazapyr, tryclopyr, Escort,			

3.3 List below the areas that have Threatened or Endangered Plant or Animal Species and the name of the species, and any special measures that need to be taken due to their presence. Attach any BAs, T&E maps, or letters from US Fish and Wildlife.

See Handbook — [T&E Plant or Animal Species](#) for requirements and determining presence.

Tacoma – Raver No. 1 (See attached maps for locations)

Span		Threatened or Endangered Plant or Animal Species	Method/mitigation measures
To	From		
7/5 + 340	8/1 + 00	Anadromous fish - No Name Creek	For T&E streams within a 400-foot buffer (on each side of the stream) no herbicides are to be used. No mechanical treatment within the buffer except along access roads and around structures. Exception may be made on slopes less than 20%, with high concentration of tall growing brush (tree) to reduce fuel loading. The primary objective is to maintain a low growing plant community including tall shrubs and low growing trees such as Vine Maple and Willow to provide shade along the stream. When cutting large CT's or DT's along the edges of the ROW, they will be evaluated for their potential as large woody debris (LWD).
9/5 + 960	10/2 + 100	Anadromous fish - No Name Creek + Wetland	
11/5 + 190	11/6 + 190	Anadromous Fish & Bull Trout – Green River	
12/5 + 425	13/1 + 75	Anadromous fish - No Name Creek + Wetland	
14/1 + 20	14/1 + 820	Anadromous fish - No Name Creek + Wetland	
15/1 + 1440	15/2 + 1540	Anadromous Fish & Bull Trout – Creek & Wetland	

3.4 List any other measures to be taken for enhancing wildlife habitat or protecting species.

See Handbook — [Protecting Other Species](#) for requirements.

None mapped. Machines will not be used below the high water level of the creeks or within the wetlands. Shrubs along the creeks will be maintained to provide shade and debris.

3.5 List any visually sensitive areas and the measures to be taken at these areas.

See Handbook — [Visual Sensitive Areas](#) for requirements.

None known within the project area.

3.6 List areas with cultural resources and the measures to be taken in those areas.

See Handbook – [Cultural Resources](#) for requirements.

None known within the right-of-way.

3.7 List areas with steep slopes or potential erosion areas and the measure and methods to be applied in those areas.

See Handbook – [Steep/Unstable Slopes](#) for requirements. See attached maps for exact locations.

Tacoma – Raver No. 1 (See attached maps for locations)

Span		Describe sensitivity	Method/mitigation measures
From	To		
1/4 + 1280	2/1 + 510	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal
2/2 + 310	2/2 + 910	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal
4/3 + 90	4/4 + 400	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal
4/5 + 425	4/5 + 1201	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal
5/4 + 280	5/4 + 520	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal
7/1 + 790	7/1 + 890	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal
7/1 + 1190	7/1 + 1450	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal
9/3 + 110	9/3 + 480	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal
9/3 + 810	9/4 + 610	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal
11/6 + 1000	12/2 + 400	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal
14/1 + 260	14/1 + 520	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal
15/1 + 370	15/1 + 520	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal
15/2 + 1460	15/2 + 1675	Steep slope	Slopes > 20 % No mechanical treatment on Right of Way. Garlon 4: Cut Stump or Basal

3.8 List areas of spanned canyons and the type of cutting needed.

See Handbook – [Spanned Canyons](#) for requirements.

Tacoma – Raver No. 1 (See attached maps for locations)

Span		Describe sensitivity	Method/mitigation measures
From	To		
9/3 + 480	9/3 + 810	Select Tree Cut	Select Tree Cut and/or top selected trees, and herbicides will not be used within these areas.
Resource	Treatment Alternatives		
STC	Any areas in the corridor with greater than 38.1 m (125 ft.) vertical distance between the ground surface and transmission lines. Here, removal is periodically required only of individual trees (single tree cuts) that could encroach into the transmission corridor danger zone. Herbicides: None.		

4. DETERMINE VEGETATION CONTROL METHODS

See Handbook — [Methods](#)

4.1 List Methods that will be used in areas not previously addressed in steps above.

See Handbook — [Manual, Mechanical, Biological, and Herbicides](#) for requirements for each of the methods.

MANUAL: Manual control methods include the following: cutting with shears, clippers, or chainsaws; and girdling by cutting a ring around the tree. When chainsaws are used cut conifers below the lowest live limb to eliminate continued growth of the lateral branches and cut all stumps flat where possible.

MECHANICAL: Mechanical methods include the use of brush mowers and feller bunchers. Ground-disturbing mechanical equipment will not be used on slopes over 20% or in riparian areas (Refer to 3.1). Work will be done when the ground is sufficiently dry enough to sustain heavy equipment and minimize excessive rutting.

HERBICIDES: The herbicide treatments prescribed for the project area are spot stump treatment, localized basal treatment, and localized foliar treatment. Where possible the deciduous stumps will be treated to prevent resprouting. If we are unable to treat the stumps during the project, we will wait until the next growing season and do a localized foliar treatment. In areas where the trees are less than 6ft. tall and the density is light we may do a localized basal treatment.

PROPOSED HERBICIDES Glyphosate, triclopyr (Garlon 3A and 4), imazapyr, and dicamba may be prescribed for cut-stump, stem-injection, and basal-stem treatments. In addition to the above herbicides, Escort, and clopyralid can be used for spot foliar and Broadcast treatments. 2,4-d amine may be added to the list to control Noxious weed species. See Tables 111-1: Buffer width to Minimize Impacts on non-target Resources, and 5-7: Herbicide Ecological Toxicities and Characteristics. (Transmission Vegetation Management EIS).

SEE CUT SHEET FOR CONTROL METHODS

5. DETERMINE DEBRIS DISPOSAL AND REVEGETATION

5.1 Describe the debris disposal methods to be used and any special considerations.

See Handbook — [Debris disposal](#) for a checkbox list and requirements.

Mulching/Mowing – This will be done on access roads and around structure sites.

Lop and Scatter – These areas are identified in the VEGETATION CONTROL PRESCRIPTION as Cut, Lop, and Scatter.

Some areas may require that the brush be chipped. These areas are identified in the VEGETATION CONTROL PRESCRIPTION as cut and treat as needed, and will depend on the requirements of the landowners.

5.2 List areas of reseeding or replanting (those areas not already described in steps 1, 2, or 3).

See Handbook — [Reseeding/replanting](#) for requirements.

Not planned at this time. However, if soil disturbance occurs during the project the area will be reseeded.

5.3 If not using native seed/plants, describe why.

Native seed will be considered in all mixes. Introduced species may be more competitive against invading tree species and protecting against erosion.

5.4 Describe timing and any follow-up that will need to take place to ensure germination/success of seeding/planting.

Not planned at this time. However, if reseeding is necessary it will take place in the fall just before the fall rains.

6. DETERMINE MONITORING NEEDS

See handbook — [Monitoring](#) for requirements.

6.1 Describe the follow-up/monitoring cycle that will be used to evaluate the effectiveness of the vegetation control methods used.

The project area will be inspected during treatment. In addition, it will be reviewed during routine patrols by the line crew and within one year by the NRS.

6.2 Describe any follow-up or monitoring needed to determine if mitigation measures were effective.

Will review during line patrol by the line crew and within one year by the NRS.

7. PREPARE APPROPRIATE ENVIRONMENTAL DOCUMENTATION

See handbook — [Prepare Appropriate Environmental Documentation](#) for requirements.

7.1 Describe any potential project impacts or project work that are different than those disclosed in the Transmission System Vegetation Management Program EIS. Describe how those differences impact natural resources and if the differences are “substantial”.

Effects are expected to be the same or less than the description provided in the EIS.

7.2 Is there a need for additional NEPA documentation (i.e. Forest Service requirement, Record of Decision, supplemental EIS)? If so, attach.

No